

## **TITLE OF INVENTION**

The Applicant , Walter J. Freybe , whose complete address is :

# 93 – 31406 Upper Maclure Road, Abbotsford , British Columbia, V2T  
5L8,

Phone : 604-854-1952 ; Fax : 604-854- 5072

Canada,

Requests the grant of a patent for an invention, entitled :

### **PASTEURIZATION OF DELI – SALADS**

The inventor is : WALTER J. FREYBE , whose complete address is :

# 93 – 31406 Upper Maclure Road, Abbotsford, British Columbia, V2T 8L8

Phone : 604–854–1952 ; Fax : 604–854–5072, Canada,

The inventor and the applicant own the whole interest in the invention in  
Canada.

The applicant believes that the applicant is entitled to claim status as a  
“small entity “ as defined under section 2 of the patent act.

## **PROCESS FOR PASTEURIZING DELI – SALADS**

### **1 ) TECHNICAL FIELD**

This invention relates to a process of manufacturing deli-salad products which are prepared with no preservatives other than salt, sugar or sweeteners and food acidulates.

This invention relates in particular to a process where the salad is packed in plastic bags, pasteurized and rapidly cooled to avoid a measurable bacteria count

### **2 ) BACKGROUND**

Presently, most deli – salads for bulk display or retail packaging are usually packed into plastic containers ranging in size from 215 g to 15 kg containers. A long shelflife is achieved by adding preservatives such as potassium sorbate, sodium benzoate or other chemicals .

This invention will allow the production and packaging of these deli – salads without such preservatives and allow these salads to be kept refrigerated for a period of at least 60 days without impairing the quality.

### **SUMMARY OF THE INVENTION**

The process of preparing deli – salads according to the invention resulting in a long shelflife after pasteurization and rapid cooling comprises of the following :

Vegetables such as potatoes or any other agriculture grown food product or manufacture thereof are prepared in a normal manner according to desired

cut of vegetables or pre cooking of other ingredients such as pasta. This base is then mixed in a normal manner with varying proportions of regular prepared salad dressings which may contain water, oil, egg products, seasonings, spices, herbs, sugar, salt, food acidulates, vegetable products, starches, flour, vegetable gums, and other non preservative food ingredients as may be needed to create the desired flavour profile and stability of the emulsion. In order to achieve the same flavour and mouthfeel it may be necessary to vary the consistency of the dressing used in pasteurized salads from the consistency of dressings normally used in regular cold packed salads. It may also be necessary to vary the percentage of dressing to solids in pasteurized salads from the percentage of dressings to solids normally used in regular cold packed salads. For instance the salads shown in table (1) were adjusted in the following manner:

**Four bean salad :**

Regular cold packed salads :

75.3 % solids          24.7 % dressing

Pasteurized salad :

73.4 % solids          26.6 % dressing ( consistency of the dressing

was the same in both cases.)

**Thai Noodle salad :**

Regular cold packed salad :

71.1% solids          28.9 % dressing

Pasteurized salad :

72.4 % solids          27.6 % dressing

Dressing in the pasteurized salad was changed as follows :

Increase starch by          .8%

Increase soya sauce by 8.62%

Decrease water by 6.29 %

Decrease vinegar by 3.13 %

### **Potato & Egg salad :**

Regular cold packed salad :

79.4 % solids                      20.6% dressing

Pasteurized salad:

65.2 % solids                      34.8 % dressing

Dressing in the pasteurized salad was changed as follows :

Xantham gum increased by .22 %

Liquid egg reduced by 6.29 %

Enzyme modified egg

product added                      4.00 %

Oil reduced by 6.10 %

Vinegar reduced by 3.40 %

### **Red potato salad**

Regular cold packed salad :

73 % solids                      27 % dressing

Pasteurized salad :

66 % solids                      34 % dressing

Dressing in the pasteurized salad was changed as follows :

Xantham gum increased by 2.95 %

Liquid egg reduced by 5.00 %

Enzyme modified egg

product added                      3.90 %

Oil increased by	2.10 %
Vinegar reduced by	0.59 %
Lactic acid increased by	1.30 %

The salads were packed into sealable , heat resistant plastic bags .The bags each holding 2 kg had the following dimension. :

44 cm long, 20 cm wide, and 3.8 cm deep. At a temperature of 90° C the bags were pasteurized for 60 minutes . The core temperature was 72° C for 16 minutes. Immediately after removal from the hot environment the bags were cooled for 60 minutes at which time the core temperature was 10° C.

The bags were then refrigerated for 60 days at a temperature < 4° C.

The effect of the pasteurization and cooling process in this manner achieved the results shown in the following certificate of analysis :

TABLE 1

	4 bean salad	thai noodle . Salad	potato &egg sal.	red potato Salad
Standart plate count	<10	< 10	< 10	< 10
Total coli forms	<2	<2	<2	<2
Fecal coliforms	<2	<2	<2	<2
Escherichia coli	-	-	-	all negative
Salmonella species	-	-	-	all negative
Staphylococcus aureus	-	-	-	all negative
Pseudomonas aeruginosa	-	-	-	all negative
Bacillus cereus	-	-	-	all negative
Clostridium perfringens	-	-	-	all negative
Listeria monocytogenes	-	-	-	all negative
Lactobacillus species	-	-	-	all negative
Yeast	<10	<10	<10	<10
Mold	<10	<10	<10	<10

The size and weight of the 2 kg bags , the pasteurizing temperature and the length of the pasteurization process were chosen as an example. In this example it was demonstrated that by pasteurizing these bags at 90° C , holding the core temperature for 16 minutes at 72° C and cooling the product to < 10° C within 60 minutes all measurable bacteria were destroyed. The process of using plastic bags in the manner described can be used for any size bag and at temperature as high as 99° c and as low as 65° C. In every case the degree of the critical core temperature and the length of time the particular size of bag must be held at this core temperature, needs to be established .